

ABSTRACT - INMM ANNUAL MEETING 1997

CADMIUM ZINC TELLURIDE DETECTOR SYSTEM FOR NUCLEAR MATERIAL ASSAY*

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This paper will report on the results of over three years of collaborative efforts between Lawrence Livermore National Laboratory (LLNL) and EG&G ORTEC to develop an ambient temperature radiometric instrument. Three tools were developed as a result of this research: The CZT Probe - a cadmium zinc telluride (CZT) -based gamma- and x-ray detector probe, the MicroNOMAD - a low power, portable multichannel analyzer (MCA), and CZTU - spectral analysis software that provides uranium enrichment analysis. The combination of these three tools provides the ability to search and identify transuranics as well as other radionuclides in the field. Several national and international organizations including the International Atomic Energy Agency (IAEA), the European Communities Safeguards Directorate (EURATOM), U.S. Customs, and U.S. Department of Energy (DOE), have expressed interest and are currently evaluating these systems. We will report on improvements in peak efficiency presently being made. New applications supported by these improvements will be discussed.

An oral presentation is preferred.

Biographical Information

Anthony D. Laviates received a BSEE with a minor in computer science from the University of the Pacific, Stockton, CA., and a MSEE with an emphasis in analog integrated circuit design from the University of California, Davis, CA. Professional experience includes particle accelerators, low power electronic circuits and systems, custom and semi-custom silicon design, and the development of radiation detection instrumentation using both cryogenic and ambient temperature detector technology.

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